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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,454	05/24/2006	Hiroshi Abe	ABE	1418
23643 7590 09/17/2007 BARNES & THORNBURG LLP 11 SOUTH MERIDIAN INDIANAPOLIS, IN 46204			EXAMINER NATALINI, JEFF WILLIAM	
			ART UNIT 2858	PAPER NUMBER
			MAIL DATE 09/17/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/540,454

Applicant(s)

ABE, HIROSHI

Examiner

Jeff Natalini

Art Unit

2858

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 June 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 2-7, 10-19, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsushita (JP7-60185, disclosed in IDS).

In regard to claim 21, Matsushita discloses a capacitance detecting proximity sensor that electrostatically detects when a detection subject has come into proximity within a difference threshold (paragraph 4, of the translation disclosed),

wherein the sensor structure houses a first detection electrode and a second detection electrode that are disposed in mutual proximity in a predetermined geometrical relationship and are mutually electrically independent (figure 2, electrodes are elements 1 and 3),

the environment in which the first detection electrode and the second detection electrode are disposed in the sensor structure is differentiated and configured so that when the detection subject is present in the vicinity of the difference threshold, the electrostatic environmental condition between the detection subject and the first detection electrode and the electrostatic environmental condition between the same detection subject and the second detection electrode are different (paragraph 5),

and the sensor circuit detects and outputs the difference between a capacitance to ground formed by the first detection electrode and a capacitance to ground formed by the second detection electrode (paragraph 5 and paragraph 16 with figure 1).

In regard to claim 2, Matsushita discloses wherein a shield electrode is disposed in the sensor structure so as to surround another portion of the difference threshold vicinity excluding a front side portion of the difference threshold vicinity facing the detection subject, and the first detection electrode and the second detection electrode are electrostatically shielded by the shield electrode excluding the front direction (paragraph 6 and also figure 5b).

In regard to claims 3 and 13, Matsushita discloses wherein the environment in which the first detection electrode and the second detection electrode are disposed in the sensor structure is differentiated so that the spatial distance between the detection subject in the vicinity of the difference threshold and the first detection electrode and the spatial distance between the same detection subject and the second detection electrode are different (figure 2, the distance between subject X and electrode (element 1) is different then the distance between subject X and electrode (element 3)).

In regard to claims 4 and 14, Matsushita discloses wherein the dielectric constants of a first dielectric disposed at the front side of the first detection electrode facing the detection subject and a second dielectric disposed at the front side of the second detection electrode facing the detection subject are made different, whereby the environment in which the first detection electrode and the second detection electrode

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are disposed in the sensor structure is differentiated (paragraph 17, second and third sentences).

In regard to claims 5 and 15, Matsushita discloses wherein the second detection electrode is disposed opposite from the front side of the first detection electrode facing the detection subject so that the second detection electrode is hidden from the difference threshold vicinity at a rear portion of the first detection electrode (figure 2, first detection electrode (element 1) is at a front side compared to the second electrode for detection (element 3)), whereby the environment in which the first detection electrode and the second detection electrode are disposed in the sensor structure is differentiated (paragraph 17, second and third sentences).

In regard to claims 6 and 16-19, Matsushita discloses wherein the first detection electrode, the second detection electrode and the sensor structure are configured in band-like shapes (see figures 5a and figure 2).

In regard to claim 7, Matsushita discloses wherein the shield electrode is formed in a rail shape having a substantially U-shaped cross section, with the first detection electrode and the second detection electrode being housed inside the U-shaped groove (figure 5b, wherein the U-shaped electrode is element 4).

In regard to claim 10, Matsushita discloses wherein the first detection electrode and the second detection electrode are divided (see figures 1 and 2), with the shield electrode individually surrounding the divided electrodes (paragraph 6 and figure 5a and b).

In regard to claim 11, Matsushita discloses wherein the sensor circuit includes a first capacitance detection circuit that measures the capacitance to ground of the first detection electrode, a second capacitance detection circuit that measures the capacitance to ground of the second detection electrode, and a difference detection circuit that outputs the difference between the measured outputs of these two capacitance detection circuits (paragraph 16 and figure 1).

In regard to claim 12, Matsushita discloses wherein the first and second capacitance detection circuits are switched capacitor-type capacitance detection circuits (paragraph 16, "electrostatic capacity").

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsushita (JP7-60185) in view of Melnick (3311696).

Matsushita discloses a U-shaped shield electrode (figure 5b, element 4).

Matsushita lacks specifically wherein metal foil is disclosed on the outer side of the electrode.

Melnick discloses metal foil disposed on an electrode surface (col 5 line 16-23).

It would have been obvious to one with ordinary skill in the art at the time the invention was made for Matsushita to include metal foil on the outside of the u-shaped electrode as taught by Melnick in order to provide shielding to the u-shaped electrode (col 5 line 16-18).

5. Claims 9 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsushita (JP7-60185) in view of Schoefthaler et al. (6215318).

In regard to claims 9 and 20, Matsushita lacks wherein the first and second electrodes are formed in a comb shape having teeth and disposed wherein the comb like teeth mesh together.

Schoefthaler et al. discloses a sensor having electrode combs (col 2 line 50-54) wherein the comb like teeth mesh together (seen in figures 1 and 2).

It would have been obvious to one with ordinary skill in the art at the time the invention was made for Matsushita to include comb like filters wherein the teeth meshed together as taught by Schoefthaler et al. in order to produce a motion dependent change in capacitance (col 2 line 52-54).

### ***Response to Arguments***

Applicant's arguments filed 7/9/07 have been fully considered but they are not persuasive. Applicant is arguing that Matsushita lacks "first and second detection electrodes disposed in mutual proximity in a predetermined geometrical relationship". In this argument, applicant talks about a ratio and a large difference in the capacitance

between the first electrode and the sample as compared to the capacitance between the second electrode and the sample. Now while the ratio and the capacitance may provide a distinction between the present invention and Matsushita, the claim language does not state specifically this predetermined geometric relation that is described in the arguments. The claim language must be examined in the broadest reasonable interpretation. The limitation "mutual proximity" merely means the electrodes are placed close to each other, which clearly Matsushita in figure 2 shows (electrodes 1 and 3 are placed close to each other). The limitation "in a geometrical relationship" broadly means that they have a geometric relationship relative to each other, as they are placed specifically so that one electrode will be placed in the vicinity where the body approaches and the other in a vicinity where the body does not approach (paragraph 15), this is relationship based on the geometrical positioning of the electrodes. Geometric is defined as (Random House Unabridged Dictionary 2006) of or relating to geometry, so broadly these two electrodes can be considered to have a geometric relationship as a line can be formed between the two creating a geometric relationship.

Because Matsushita discloses "two electrodes in mutual proximity in a geometrical relationship", claim 21 has been rejected and the previous rejection of claims 2-20 remain pending.

### ***Conclusion***

Applicant's amendment (addition of claim 21) necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.**



See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Natalini whose telephone number is 571-272-2266. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Hirshfeld can be reached on 571-272-2168. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jeff Natalini



ANJAN DEB  
PRIMARY EXAMINER